

# ADAPTIVE MANAGEMENT PROGRAM

Using Science to Manage River Resources in Grand Canyon



## Historical Native Fishes of Glen and Grand Canyons

The native fishes of the Colorado River make up one of the most unique and unusual faunas found anywhere in the world. This assemblage of fish is specifically adapted to the historic environment of the Colorado River, and the species that make up this assemblage are often found nowhere other than the Colorado River Basin.

Even prior to the construction of Glen Canyon Dam, the Colorado River in Grand Canyon was dominated by introduced fish species, mostly warm water types. The construction of Glen Canyon Dam changed the river from a turbid, flood-prone, warmwater river to a perennially cold, clear river. This allowed trout, which were introduced, to flourish and expand their use of the river.

These fundamental changes to the ecosystem in which the native fish evolved may present numerous challenges to their survival. They encounter a physiological of being a warmwater adapted fish now living in a cold environment. Introduced fishes residing in the Grand Canyon may interact with, compete with, or prey upon these native fishes. Finally, changes in the foodbase have occurred due to the presence of much clearer water than existed prior to construction of Glen Canyon Dam.

### Common Native Fish in Grand Canyon - Conservation Through Adaptive Management

- **Speckled Dace** (*Rhinichthys osculus*) - This small minnow is widely distributed across the western United States. They inhabit tributaries of the Colorado River through Glen and Grand Canyons, and are not uncommon in backwaters in western Grand Canyon.
- **Bluehead Sucker** (*Catostomus discobolus*) - Blueheads occur throughout the upper Colorado River Basin and extend into the Lower Basin through the Little Colorado River Drainage and through Grand Canyon to Lake Mead. They are common in tributaries in Grand Canyon. An adult bluehead may approach 20 inches in length, and can live up to 20 years.
- **Flannelmouth Sucker** (*Catostomus latipinis*) - Flannelmouth Sucker are widely distributed in the Upper Colorado River Basin, and extend into the Little Colorado River Watershed of Arizona and through Grand Canyon. An adult flannelmouth sucker may approach about 20 inches in length, and like other large suckers of the Colorado River may live up to 20 years.

### Endangered Fishes of Grand Canyon - A Major Focus of Adaptive Management

- **Humpback Chub** (*Gila cypha*) - This endangered fish is only known from the Colorado River System, and is restricted to a few remaining populations. One of those populations resides in the Grand Canyon. It was historically widely distributed in the Upper Colorado River Basin and extended down the main stem of the Colorado River into the Lower Basin to at least current Lake Havasu. In Grand Canyon, most humpback chub are found in the vicinity of the Little Colorado River and its confluence with the Colorado River. This is a warm water species, and its spawning and recruitment appears limited in the now cold waters of the Colorado River in Grand Canyon. Spawning

and recruitment of young chub appears to be principally restricted to the lower portions of the Little Colorado River in Grand Canyon. An adult chub might reach 20 inches in length, and may live 20 years or more. Population levels have declined over the last decade, though recent information suggests some recent increases in recruitment. Modification of the river's temperature, expansion of tributary populations, and nonnative fish control are all strategies being evaluated through Adaptive Management.

### **Endangered Fish Absent from Grand Canyon - Possible Restoration Species**

- **Razorback Sucker** (*Xyrauchen texanus*) - The endangered razorback sucker may be extirpated from Grand Canyon. This fish was historically widely distributed throughout both the Upper and Lower Colorado River Basins. No razorbacks have been captured from the River in recent years. Adult razorback suckers are found in the Colorado River and the lower San Juan River above Lake Powell; in Lake Mead; and Lake Mohave. A large razorback sucker can reach a length of three feet, and may live upward of 40 years.
- **Bonytail Chub** (*Gila elegans*) -A cousin of the humpback chub, they share many features in common.. Its size and lifespan are similar to a humpback chub. This species is very rare and is listed as endangered. Bonytail chub have not been reported from Glen or Grand Canyon in recent history.
- **Colorado Pikeminnow** (*Ptychocheilus lucius*) - This fish is the giant of the minnow family, reported achieving a maximum length of 6 feet. This fish was historically widely distributed throughout the Colorado River Basin. It is now extirpated from the Lower Basin, including Grand Canyon, and is listed as an endangered species throughout its range.